UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/565,434	01/20/2006	Satoru Furukawa	506.45841X00	2155

20457 7590 07/12/2006

ANTONELLI, TERRY, STOUT & KRAUS, LLP
1300 NORTH SEVENTEENTH STREET
SUITE 1800
ARLINGTON, VA 22209-3873

EXAMINER	
CHISM, BILLY D	

ART UNIT	PAPER NUMBER
1654	

DATE MAILED: 07/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/565,434	FURUKAWA ET AL.	
	Examiner	Art Unit	
	B. Dell Chism	1654	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-15 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-15 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This is the first office action on the merits with claims 1-15 pending and under consideration.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-15 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for treatment of Flavivirus or Coronavirus, does not reasonably provide enablement for prevention of Flavivirus or Coronavirus. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make or use the invention commensurate in scope with these claims.

In this regard, the application disclosure and claims have been compared per the factors indicated in the decision *In re Wands*, 8 USPQ2d 1400 (Fed. Cir., 1988) as to undue experimentation. Each factor is addressed below on the basis of comparison of the disclosure, the claims and the state of the prior art in the assessment of undue experimentation. The factors follow:

1. the nature of the invention; the invention is to the treatment of Coronavirus and Flavivirus infections by administration of compositions comprising glutathione or catechin, or both.

2. the breadth of the claims; according to the language of the claims, the use of the compounds as claimed would prevent any Coronavirus and Flavivirus infections in any animal or tissue cultures or cell lines to any degree.

3. the predictability or unpredictability of the art; the claimed subject matter is lacking in predictability wherein it would at best have invariable results regarding total prevention of Coronavirus and Flavivirus infections in any animal, tissue culture or cell lines, etc...at all times. Prevention requires the absolute stoppage of there ever being a Coronavirus and Flavivirus infection in any animal, tissue or cell line, etc...at all times. The prior art does not indicate absolute prevention of the infections within the scope of the instant claims. Applicants have reasonably demonstrated/disclosed that the claimed compound is useful as a therapeutic agent for treating Coronavirus and Flavivirus and/or reducing the risk thereof. However, the claims also encompass using the claimed compound/composition to prevent Coronavirus and Flavivirus, which is clearly beyond the scope of the instantly disclosed/claimed invention. Please note that the term "prevent" is an absolute definition that means to stop from occurring, thus, requires a higher standard for enablement than does "therapeutic", especially with respect to preventing Coronavirus and Flavivirus, which is not recognized in the medical art as being a totally preventable condition/disorder/disease.

4/5. the amount of direction or guidance presented and the presence or absence of working examples; the guidance and examples given in the instant specification are to controlled experiments for treatment infection. Although some examples demonstrate the lack of presence of viral DNA in inoculated cells cultures, this is not sufficient in

establishing the absolute prevention of viral infections of Coronavirus and Flavivirus species in all animals. The data found in the specification is a demonstration of reduced risk of infection by treatment with the instantly claimed compounds. Although some data demonstrated the absence of the viral DNA during particular periods of exposure to the claimed compounds, the specification does not provide enough guidance in extrapolating the data to achieve absolute prevention of Coronavirus and Flavivirus infection all animal or tissue cultures or cell lines.

6. the quantity of experimentation necessary; the specification is lacking in sufficient data and guidance through working examples to extrapolate means of absolute prevention. There is a lack of predictability in the art regarding prevention of the myriad of diseases associated with Coronavirus and Flavivirus infections. The amount of experimentation necessary to achieve predictable and absolute means of prevention would be undue on one of ordinary skill in the art.

7. the state of the prior art; the prior art does not afford methods of absolute prevention of infection by the claimed families of viruses. In fact, as late as a month prior to the priority date of the instant application, the prior art discusses the frustrations with SARS and its spread (Zhong, Chinese Medical Journal, 2003, Vol. 116(6), pages 803-804). Zhong discusses the lack of understanding regarding SARS characteristics such as viral mutations. The prior art lacks teachings of absolute prevention of Coronavirus and Flavivirus infections in any animal, tissue cultures or cell lines. The specification does not compensate the deficiencies in the prior art.

8. the relative skill of those skilled in the art; In view of the discussion of each of the preceding seven factors the level of skill in this art is high and is at least that of a Ph.D. or M.D. with several years of experience in the art. As the cited art would point to, even with a level of skill in the art that is Ph.D. or MD, predictability of the results is not invariable due to such factors as mutation, world travel, world economy and the many facets of exposure to viruses that are within the scope of the instant claims.

In consideration of each of factors 1 - 8, it is apparent that there is undue experimentation because of variability in prediction of outcome that is not addressed by the present application disclosure, examples, teaching, and guidance presented. Absent factual data to the contrary, the amount and level of experimentation needed is undue.

4. Claims 12-13 provide for the use of compositions, but, since the claims do not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1-11 and 14-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1 requires **one** compound selected from the Markush group to be in the composition, however, claim 2 requires **more than one** compound from the Markush group yet the claim 2 depends directly from claim 1. It is unclear as to whether the claim 1 should be open to **one or more** members of the Markush group as is cited in claim 14. Therefore, claim 1 should be amended to allow for **more than one member** or claim 2 should be amended to read as an independent claim wherein it would allow for **more than one** member of the Markush group as an independent claim.

Claims 3-11 are rejected for depending directly or indirectly from indefinite claim 1.

Claim Rejections - 35 USC § 101

7. Claims 12-13 are rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd.* v. *Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

It should be noted that if the claims 12-13 are amended to be product claims, then the rejections discussed herein would apply to the products accordingly. If the claims are amended to read as method claims, then the method claim rejections discussed herein would apply accordingly.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1 and 4-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Woong et al. 2003 (DNA and Cell Biology, Vol. 22(3), pages 217-224). Woong et al. teach green tea constituent, (-)-epigallacatechin (EGCG) in a pharmaceutical composition delivered via drinking EGCG in water. Claims 1 and 4-8 are interpreted as product claims containing "intended use" language in the preamble; however, the "intended use" language does not preclude the existence of the composition for patentability purposes. Because claim 1 states that the composition "...comprises one member selected from...", the claim 1 is interpreted as a composition only requiring one of the compounds from the Markush group of claim 1. Woong et al. teach at page 218, right column, last paragraph, EGCG in water for oral delivery.

10. Claims 1, 4-6 and 14 are rejected under 35 USC 102(b) as being anticipated by Saito et al. 2002 (Microbiol. Immunol., Vol. 46(4), pages 249-255). Saito et al. teach the use of apple polyphenols, specifically fraction FAP2, 3 and 4, as being successful in suppression of Flavivirus in mouse models, which reads on claim 14. Saito et al. reads on composition comprising one member of the Markush group of claim 1 and 14, and anticipates the compositions of claims 4-6 wherein the composition was administered in vivo to mice.

11. Claims 1, 4-5 and 14 are rejected under 35 USC 102(b) as being anticipated by Clark et al. 1998 (Veterinary Microbiology, Vol. 63, pages 147-157). Clark et al. teach the use of

theaflavins from tea for treatment of Coronavirus infections. Clark et al. reads on compositions comprising one member of the Markush group of claims 1, 4-5 and claim 14 wherein the composition is effective against Coronavirus infections.

12. Claims 1 and 3-8 are rejected under 35 U.S.C. 102(b) as being anticipated by claims 1-7 of U.S. Patent No. 6,013,632 ('632).

Claims 1-7 of '632 teach a pharmaceutical composition comprising glutathione (reduced and oxidized, and pharmaceutical salts thereof) for oral, nasal, or rectal administration; wherein the composition can be delivered via lozenge, cough drop, oral rinse, drinking solution, and nasal drops and sprays, for example. Additionally, the '632 reference teaches antioxidants as part of the pharmaceutical composition, wherein the antioxidants are enumerated including catechin.

13. Claims 1 and 3-8 are rejected under 35 U.S.C. 102(b) as being anticipated by claims 1-3 of U.S. Patent No. 6,107,281 ('281).

Claims 1-3 of '281 teach methods of treatment comprising administration of a pharmaceutical composition comprising glutathione (reduced and oxidized, and pharmaceutical salts thereof) for oral, nasal, or rectal administration. Additionally, the '281 reference teaches antioxidants as part of the pharmaceutical composition, wherein the antioxidants are enumerated including catechin.

Double Patenting

14. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re*

Goodman, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

15. Claims 1-7 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-3 of U.S. Patent No. 6,107,281 ('281). Although the conflicting claims are not identical, they are not patentably distinct from each other because '281 teaches pharmaceutical compositions comprising glutathione disulfide and glutathione for oral, nasal or rectal administration, and further comprising one or more antioxidants selected from a list comprising catechin. These teachings of '281 clearly render obvious the instantly claimed composition comprising reduced or oxidized glutathione in composition for administration to a patient. It would have been obvious to use the glutathione and catechin in composition because the '281 invention enumerates the antioxidants to be used and clearly allows one or more antioxidants to be used including catechin.

16. Claims 1 and 3-8 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-7 or U.S. Patent No. 6.013,632 ('632). Although the conflicting claims are not identical, they are not patentably distinct from each other because '632 teaches pharmaceutical compositions comprising glutathione disulfide and glutathione for oral, nasal or rectal administration, and further comprising one or more antioxidants selected from a list comprising catechin. It would have been obvious to use the glutathione and catechin

in composition because the '632 invention enumerates the antioxidants to be used and clearly allows one or more antioxidants to be used including catechin. Additionally, '632 teaches the pharmaceutical composition in the form of a lozenge, cough drop, tablet, oral rinse, drinking solution and other forms. These teachings of '632 clearly render obvious the instantly claimed composition comprising reduced or oxidized glutathione in composition for administration to a patient.

Claim Rejections - 35 USC § 103

17. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

18. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

19. Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over claims 1-7 of U.S. Patent No. 6,013,632 ('632) in combination with claims 1-3 of U.S. Patent No. 6,107,281 ('281).

Claims 1-7 of '632 teach a pharmaceutical composition comprising glutathione (reduced and oxidized, and pharmaceutical salts thereof) for oral, nasal, or rectal administration; wherein the composition can be delivered via lozenge, cough drop, oral rinse, drinking solution, and nasal drops and sprays, for example. Additionally, the '632 reference teaches antioxidants as part of the pharmaceutical composition, wherein the antioxidants are enumerated including catechin.

Claims 1-3 of '281 teach methods of treatment comprising administration of a pharmaceutical composition comprising glutathione (reduced and oxidized, and pharmaceutical salts thereof) for oral, nasal, or rectal administration. Additionally, the '281 reference teaches antioxidants as part of the pharmaceutical composition, wherein the antioxidants are enumerated including catechin.

The pharmaceutical composition comprising glutathione is clearly taught by the two reference and the clearly suggest the composition in the formulations and delivery methods as instantly claimed. Furthermore, it would have been obvious to select the antioxidant catechin from the enumerated list as indicated in both references, with reasonable expectation of success.

The instantly claimed compositions of claims 1-8 would have been obvious to one of ordinary skill in the art since the composition components were known, as taught in '632 and '281, to be used in the same composition at the time of filing the instant invention. The instant claims 1-8 are interpreted by the Examiner to be limited to the claimed composition and are not interpreted based on the "intended use" language of the preamble.

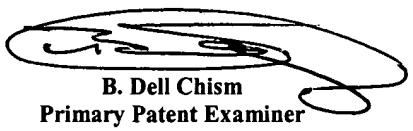
Conclusion

20. No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to B. Dell Chism, whose telephone number is (571) 272-0962. The examiner can normally be reached on M-F 08:30 AM - 5:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cecilia Tsang can be reached on (571) 272-0562.

The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

***



B. Dell Chism
Primary Patent Examiner
Technology Center 1600